

**TO STUDY CHANGES IN COGNITIVE PERFORMANCE  
BETWEEN ATOMOXETINE AND METHYLPHENIDATE  
IN CHILDREN WITH ATTENTION DEFICIT  
HYPERACTIVITY DISORDERS (ADHD**

**ABSTRACT**

**Background** - The study aimed to evaluate the difference in cognitive performance produced by Methylphenidate and Atomoxetine in children with ADHD after four weeks of starting treatment. It was hypothesized that Methylphenidate is not significantly different in terms of increased working memory and executive functions after four weeks of starting treatment compared to Atomoxetine.

**Methods** - 54 children (44 male; mean age = 10.5 +/- 2.7 years) with ADHD received ATX and MPH in a double blind prospective comparative interventional design. Medication was titrated in 4 weeks to reach optimum doses. Working memory (visuospatial, verbal and working memory span), Inhibitory control, sustained attention and set shifting measures were obtained at baseline and at the end of each treatment using NIMHANS neuropsychological battery of tests. Standard tests of significance like t test and ANOVA was used for normally distributed data and Wilcoxon rank test for analysis of non-normal or skewed data.

**Results**— Both MPH and ATX significantly improved scores in most of the EF tests from baseline, Atomoxetine was found to be superior to MPH in improving Verbal N Back task errors whereas MPH improved visuospatial N Back Task errors more

significantly than Atomoxetine.MPH was also better than Atomoxetine in improving shifting time measured by the Colour Trail Test.

**Conclusions**—ATM has greater effects than MPH on N Back measures of verbal working memory in children with ADHD. However, the superiority of MPH was demonstrable in visuospatial working memory errors and shifting time. All other parameters did not show significant differences between the two groups.

**Keywords** : Attention-Deficit / Hyperactivity Disorder; Atomoxetine; Methylphenidate; Sustained Attention; Working Memory: Set shifting; Shifting Time.